

Application



EM2-CM is a constant output heating mat for simple, fast, and effective ramp and accessway heating to prevent snow and ice formation. The EM2-CM mat is particularly suited to track heating of ramps, loading bays, and driveways, but also emergency escape routes and pedestrian walkways.

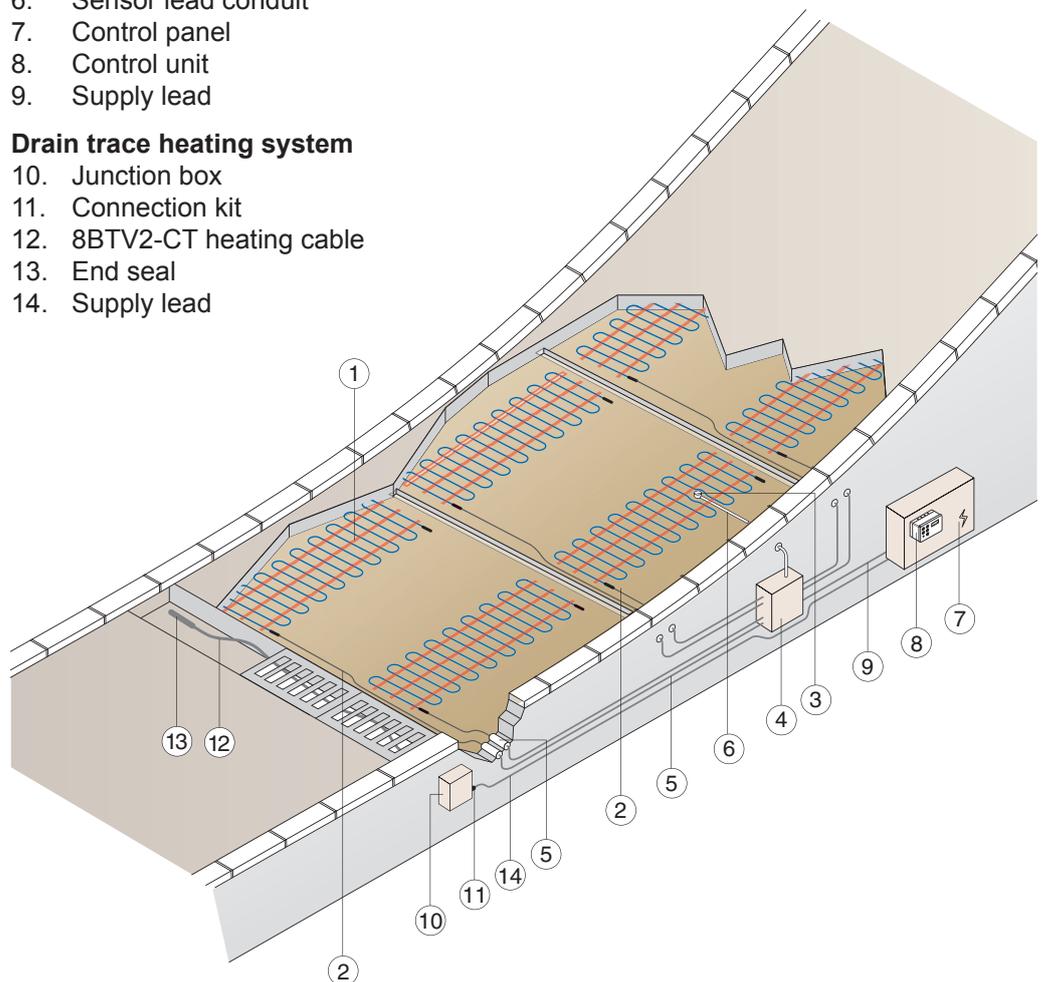
Nominal Power:	300 W/m ²
Voltage:	230 Vac
Maximum Exposure Temperature:	65°C
Cable Construction:	Twin core, constant power output heating mat, 1 cold lead 4 m
Control unit	VIA-DU-20
Certification:	CE, VDE

Determine area to be heated - track heating

1. Ramp heating mat
2. Cold lead
3. Control unit temperature + moisture sensor
4. Junction box
5. Connection lead conduit
6. Sensor lead conduit
7. Control panel
8. Control unit
9. Supply lead

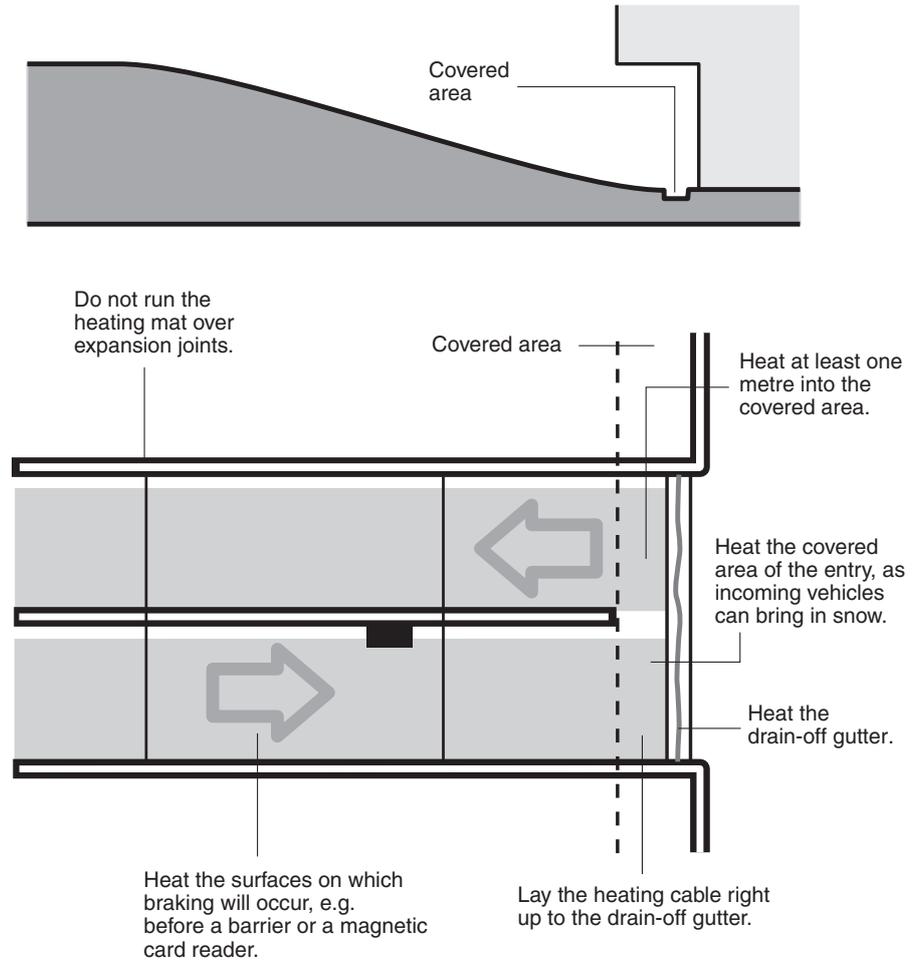
Drain trace heating system

10. Junction box
11. Connection kit
12. 8BTV2-CT heating cable
13. End seal
14. Supply lead

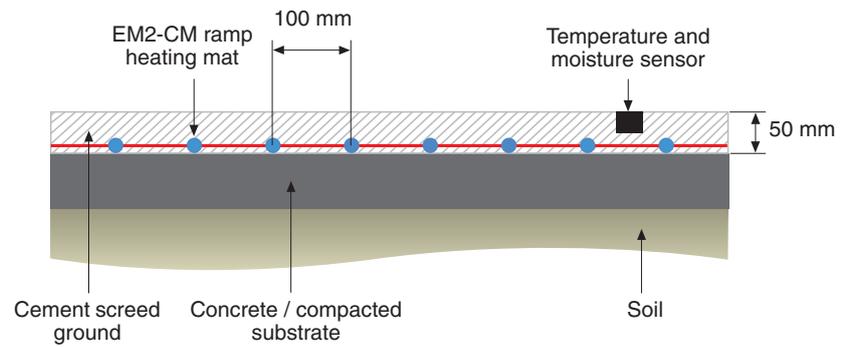


Area to be heated

Determine the exact area to be heated, e.g. wheel tracks. Consider following factors:

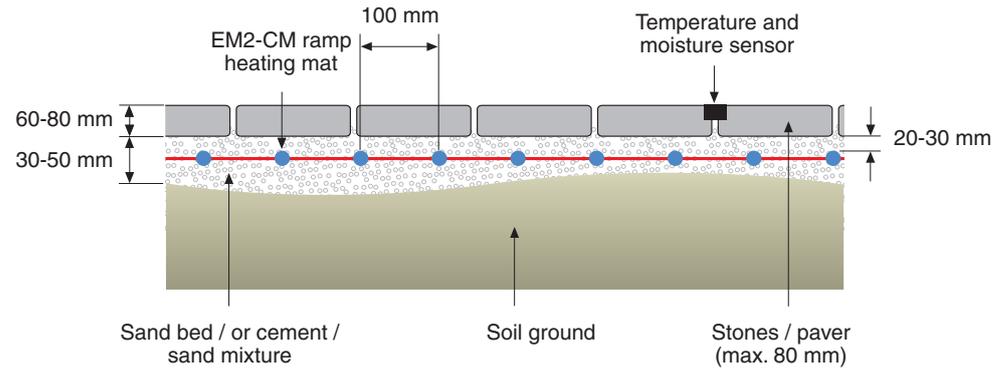


Embedding in screed or concrete

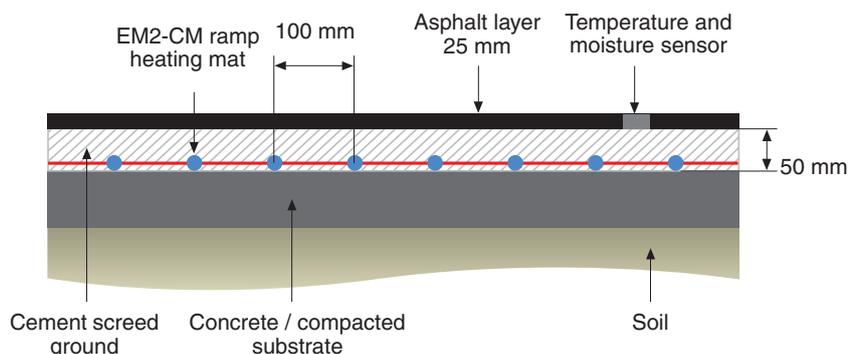


- When laying in concrete with a coating of least 25 mm

Embedding in sand bed/ pavers



Embedding in concrete / cement screed under asphalt layer



- An asphalt layer of min. 25mm can be applied on the concrete surface (max. 300 W/m²)
- The product is unsuitable for direct use in poured asphalt or on reinforcement in concrete

Packaging and ordering references

EM2-CM ramp heating mat is available in the sizes given below.

- for a quick and easy installation on site
- a pre-terminated kit contains of:
 - » X m required heating mat length
 - » 4 m cold lead length
 - » Installation manual; commissioning report

Product name	Mat size	Surface	Power output	Order reference
EM2-CM-Mat-2m	2 m x 0.6 m	1.2 m ²	400 W	1244-004887
EM2-CM-Mat-3m	3 m x 0.6 m	1.8 m ²	520 W	1244-004888
EM2-CM-Mat-4m	4 m x 0.6 m	2.4 m ²	670 W	1244-004889
EM2-CM-Mat-5m	5 m x 0.6 m	3.0 m ²	930 W	1244-004890
EM2-CM-Mat-7m	7 m x 0.6 m	4.2 m ²	1140 W	1244-004891
EM2-CM-Mat-10m	10 m x 0.6 m	6.0 m ²	1860 W	1244-004892
EM2-CM-Mat-13m	13 m x 0.6 m	7.8 m ²	2560 W	1244-004893
EM2-CM-Mat-16m	16 m x 0.6 m	9.6 m ²	2890 W	1244-004894
EM2-CM-Mat-21m	21 m x 0.6 m	12.6 m ²	3730 W	1244-004895

Ramp lanes and footpaths

Track heating: Determine the lengths of the lane and select the closest sizes in length

Electrical protection

Maximum heating mat sizes

- According to local standard and regulations
- Residual current device (RCD) 30 mA required, max. 50 m heating mat length per RCD.
- Take into account the conductor sizes and max. permitted voltage drop.

Circuit breaker sizing (MCBS to BS EN 60898, Type C)	Max. mat lengths per heating circuit
10 A	10 m
16 A	16 m
20 A	21 m

Number of circuits

$$\text{Min. number of heating circuits} = \frac{\text{Total heating mat lengths}}{\text{Max. mat lengths of heating circuit}}$$

Selection of the mat size

- The heating mat should not be laid over expansion joints
- The heating mat should be distributed as symmetrically as possible
- Calculate the obstacle free lengths and select the mat or a combination of mats with a smaller lengths closest in sizes

Example 1

16 m track heating for 2 tracks = 2 x 8 m; Circuit breaker size 16 A Max:

$$\text{Min. number of heating circuits} = \frac{16 \text{ m}}{16 \text{ m}} = 1 \text{ heating circuit}$$

Selection heating mats:

Track 1 + 2: EM2-CM-Mat-16 m

Example 2

Circuit breaker sizes 20 A

50m track heating for 2 tracks = 2 x 25 m

$$\text{Min. number of heating circuits} = \frac{50 \text{ m}}{21 \text{ m}} = 3 \text{ heating circuits}$$

Selection heating mats:

Heating circuit 1 Track 1+2: 2 x EM2-CM-Mat-4m = 8 m

Heating circuit 2 Track 1: EM2-CM-Mat-21 m = 21 m

Heating circuit 3 Track 2: EM2-CM-Mat - 21 m

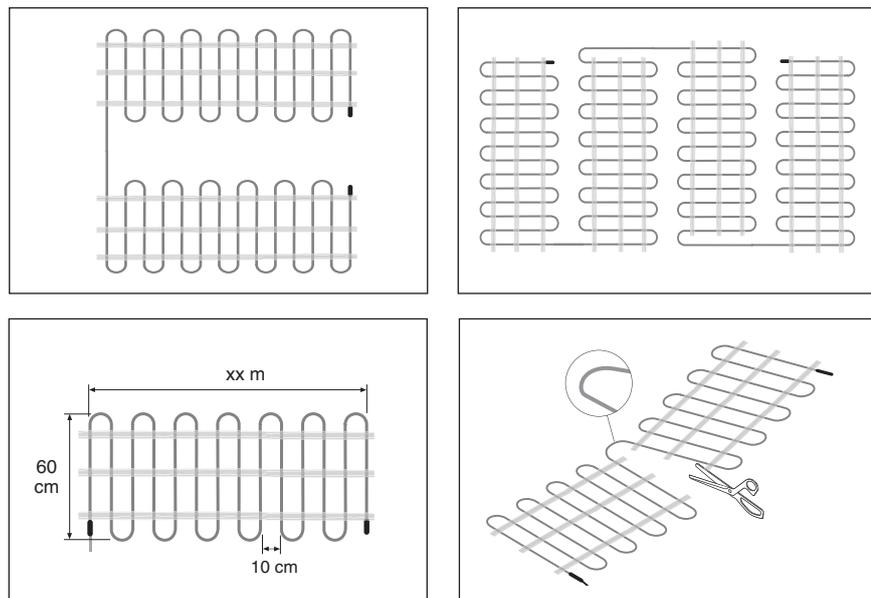
Sum in total: 50 m

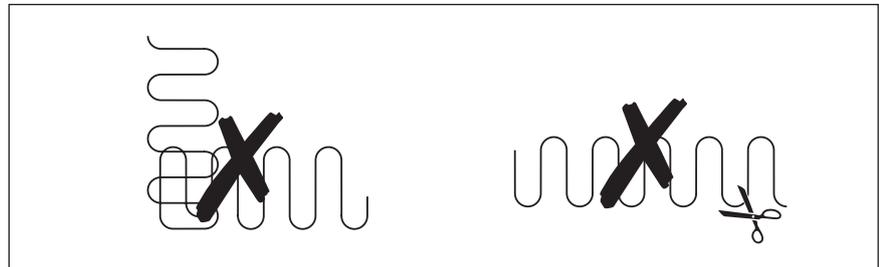
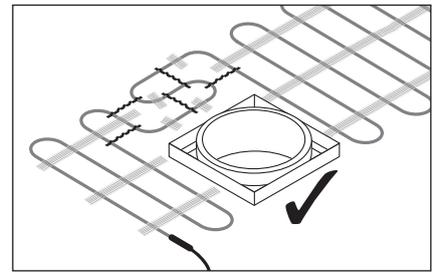
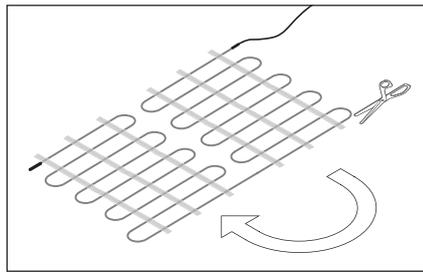
Electrical connection

- According to local standards and electrical regulations.
- The cross-section of the power cable conductors is determined according to the nominal current of the circuit breaker and max. permitted voltage drop.

Installation

If the heating cable has to be loosened from the mat it is recommended to use the plastic spacer to keep the cable spacing consistent.

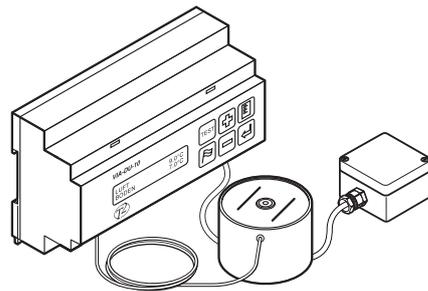




Control units

The electronic control unit ensures that the surface heating only starts when the temperature falls below a certain threshold and moisture is detected on the relevant surfaces, ensuring efficient energy use.

VIA-DU-20

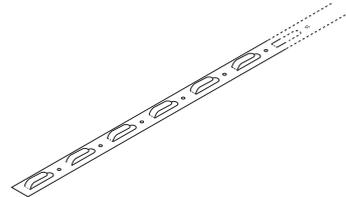


Control unit with combined moisture and temperature sensor and optional ambient temperature sensor.

- DIN-rail mounting
- Sensor cable length: 15 m
- Freezing rain precaution
- Optional BMS connection
- Alarm relay contacts

Components and accessories

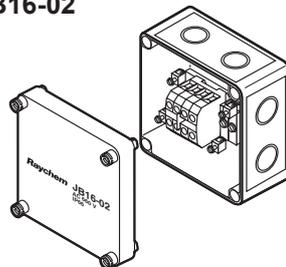
EM-SPACER-PL



Heating cable spacer

- Length: 5 m; 25 mm grid
- Plastic

JB16-02

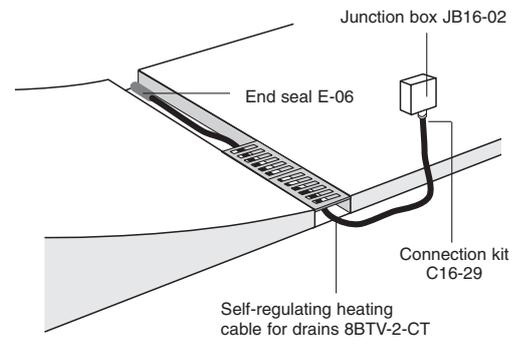
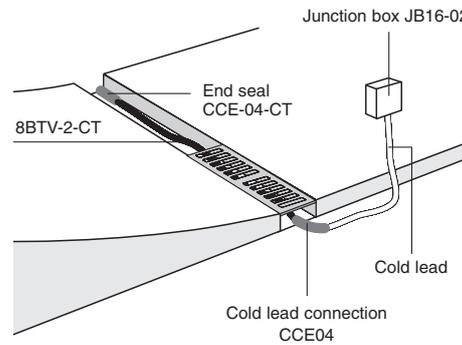


Temperature-resistant junction and connection box

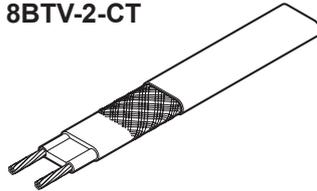
Dimensions: 94 x 94 x 57 mm

- IP66
- 6 x 4 mm² terminals
- 4 Pg 11/16 and 4 M20/25 knock-out entries

Drain tracing

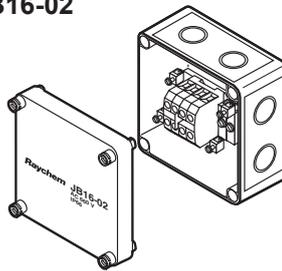


8BTV-2-CT



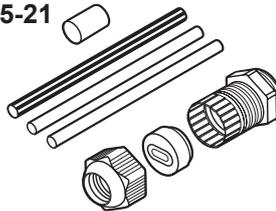
Drain heating cable with oil- and UV-resistant fluoropolymer outer jacket

JB16-02



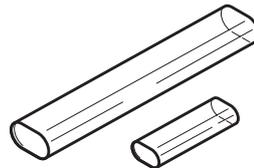
Temperature-resistant junction and connection box
 Dimensions: 94 x 94 x 57 mm
 • IP66
 • 6 x 4 mm² terminals
 • 4 Pg 11/16 and 4 M20/25 knock-out entries

C25-21



Connection kit for BTV-CT
 • Heat-shrink system (M25)

E-06



End seal kit for BTV-CT
 • Heat-shrink system

- The drain heating system can be switched via the same control unit as the self-regulating surface heating system.
- Max. 60 m of 8BTV-2-CT can be connected to a 16 A C-type circuit-breaker.
- Residual current device (rcd) 30 mA required.

Installation Instruction

Complete installation instructions are supplied with the product and are available electronically from Tyco Thermal Controls. Please request installation instruction reference: INST-272.

Specification guideline

A product specification guideline is available upon request from Tyco Thermal Controls. It is also available online at:

http://www.tycothermal.com/uk/english/snow_melting/